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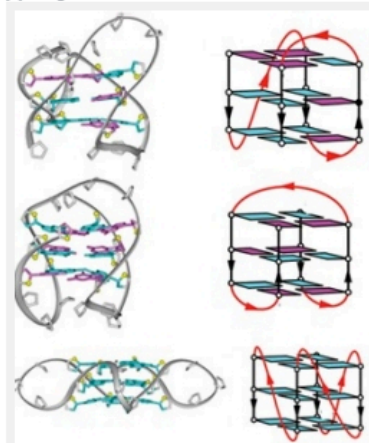
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Quadruplex In Its Element

Structures of human telomeric quadruplex in cell-like solution have implications for anticancer therapeutics

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Credit: COURTESY OF DINSHAW PATEL AND COWORKERS

Like the aglets at the end of your shoelaces, protein-and-DNA assemblies known as telomeres protect the ends of your chromosomes from fraying. In work with potential implications for the development of anticancer therapeutics, the folding pattern of DNA quadruplexes formed by human telomeres in a medium closely resembling the cellular environment now has been found by three groups. Two of the groups have also succeeded in obtaining the first three-dimensional solution structures of a human telomeric quadruplex in the same cell-like media.

The single-stranded telomere terminus can adopt the shape of a quadruplex, a folded conformation formed by some guanine-rich DNA repeat sequences. The 3-D structure adopted by human telomeric quadruplexes is of particular interest for anticancer drug discovery efforts, as drugs are

being designed to interact with such structures to inhibit telomere extension, a process that occurs selectively in cancer cells.



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